

- Fig. 2. Tongue seen from above: *a*, anterior portion; *b*, posterior portion; *c*, membrane dividing the two portions.
- Fig. 3. A gland removed from the papilla, much enlarged: *a*, terminal bifid portion; *b*, lower portion or duct, curtailed.
- Fig. 4. A portion of the network of tubes in connexion with the hepatic apparatus: *a*, anus; *b*, intestine; *c*, gland-like body surrounding the termination of the same; *d*, network of tubes.
- Fig. 5. Nervous system: *a, a*, cerebroid ganglions; *b, b*, branchial ditto; *c, c*, pedial ditto; *d, d*, olfactory ditto; *e, e*, buccal ditto; *f, f*, gastro-oesophageal ditto; *g*, commissure between the supra- and infra-oesophageal ganglions; *h*, great oesophageal collar; *i*, middle ditto; No. 1, olfactory nerve; 2, 3 and 4, nerves supplying channel of the mouth; 5, optic nerve; 6, auditory ditto; 7, nerve to side of body; 8 and 9, nerves to foot; 10, nerve to generative organs; 11, ditto to skin of the back and branchial papillæ; 12, ditto to buccal mass; 13, ditto to tongue; 14 and 15, nerves to oesophagus; 16, nerve to oesophagus and stomach.
- Fig. 6. Generative organs: *a*, sac or sheath of penis; *b*, testis; *c*, oviduct as it leaves the ovary; *d*, dilated portion of the oviduct; *e*, the point where the testis is united to the oviduct; *f*, second dilated portion of oviduct; *g*, semi-pellucid portion of mucus-gland in connexion with the female channel; *h*, opaque portion of the same; *i*, female channel leading to external orifice; *j*, spermatheca; *k*, vagina, or copulatory channel leading from external orifice to spermatheca; *l*, visceral ganglion in connexion with nerve No. 10.
- Fig. 7. A portion of the generative organs spread out, exhibiting the connexion of the various parts: *a*, penis; *b*, testis; *c*, dilated portion of oviduct; *d*, point where the oviduct is connected with the testis; *e*, second dilated portion of oviduct; *f*, female channel leading to external opening; *g*, spermatheca; *h*, duct of the same; *i*, vagina leading to external orifice; *j*, branch from the vagina leading into mucus-gland.

IV.—*A Catalogue of British Spiders, including remarks on their Structure, Functions, Economy and Systematic Arrangement.*
By JOHN BLACKWALL, F.L.S.

[Continued from vol. vii. p. 452.]

44. *Philodromus Clarkii*.

Philodromus Clarkii, Blackw. Ann. and Mag. of Nat. Hist. Second Series, vol. vi. p. 338.

A male of *Philodromus Clarkii*, having the palpal organs completely developed, was taken at Southgate in June 1849, and is preserved in Mr. Walker's cabinet.

45. *Philodromus variatus*.

Philodromus variatus, Blackw. Lond. and Edinb. Phil. Mag. Third Series, vol. x. p. 102.

In summer, when the sun shines brightly, this species may be seen on rails and gates in the neighbourhood of Llanrwst. Early

in June the female constructs a lenticular cocoon of white silk of a slight texture, measuring $\frac{1}{3}$ rd of an inch in diameter, in which she deposits about 64 spherical eggs of a pale yellow colour, not agglutinated together.

46. *Philodromus mistus*.

Philodromus mistus, Blackw. Lond. and Edinb. Phil. Mag. Third Series, vol. x. p. 103.

Affecting the same localities as *Philodromus variatus*, this spider pairs in May; and in June the female spins a cell of white silk in which she constructs a lenticular cocoon of a slight texture, measuring $\frac{1}{4}$ th of an inch in diameter, and deposits in it between 60 and 70 spherical eggs of a pale yellow colour, not agglutinated together. A near resemblance may be traced between *Philodromus mistus* and *Philodromus cespiticolis*, Walck. (Hist. Nat. des Insect. Apt. t. i. p. 555).

47. *Philodromus aureolus*.

Philodromus aureolus, Walck. Hist. Nat. des Insect. Apt. t. i. p. 556; Sund. Vet. Acad. Handl. 1832, p. 223.

Thomisus aureolus, Hahn, Die Arachn. B. ii. p. 57. t. 62. f. 144, 145.

Both sexes of this species, which were captured at Southgate in July 1849, are in Mr. Walker's cabinet.

48. *Philodromus oblongus*.

Philodromus oblongus, Walck. Hist. Nat. des Insect. Apt. t. i. p. 558; Blackw. Linn. Trans. vol. xix. p. 123.

— *trilineatus*, Sund. Vet. Acad. Handl. 1832, p. 227.

Thomisus oblongus, Latr. Gen. Crust. et Insect. tom. i. p. 112; Hahn, Die Arachn. B. i. p. 110. tab. 28. fig. 82.

Thanatus trilineatus, Koch, Uebers. des Arachn. Syst. erstes Heft, p. 28.

I have received living specimens of *Philodromus oblongus* which had been taken in the north of Lancashire and in Cheshire.

Genus SPARASSUS, Walck.

49. *Sparassus smaragdulus*.

Sparassus smaragdulus, Walck. Hist. Nat. des Insect. Apt. t. i. p. 582; Blackw. Linn. Trans. vol. xix. p. 123.

— *smaragdinus*, Sund. Vet. Acad. Handl. 1831, p. 147, and 1832, p. 271.

— *virescens*, Koch, Uebers. des Arachn. Syst. erstes Heft, p. 28; Die Arachn. B. xii. p. 87. tab. 416. fig. 1019.

Micrommata smaragdina, Latr. Gen. Crust. et Insect. tom. i. p. 115; Hahn, Die Arachn. B. i. p. 119. tab. 33. fig. 89.

This handsome spider has the tarsi provided with scopulæ con-

stituting a climbing apparatus; it is not uncommon in the south of England, and has been captured, in an immature state, in the woods at Tan y Bwlch, in Merionethshire, by Thomas Glover, Esq., of Smedley Hill, near Manchester. The sexes, when they have acquired their full development, are very dissimilar, and have been mistaken for distinct species.

Family *Drassidæ*.

Genus *DRASSUS*, Walck.

50. *Drassus lucifugus*.

Drassus lucifugus, Walck. Hist. Nat. des Insect. Apt. t. i. p. 613; Sund. Vet. Acad. Handl. 1831, p. 138; Koch, Uebers. des Arachn. Syst. erstes Heft, p. 18.

— *melanogaster*, Latr. Gen. Crust. et Insect. tom. i. p. 87; Hahn, Die Arachn. B. ii. p. 11. tab. 41. fig. 102.

Filistata femoralis, Wider, Mus. Senck. B. i. p. 206. taf. 14. fig. 5.

Pythonissa lucifuga, Koch, Die Arachn. B. vi. p. 54. tab. 194. fig. 468–470.

According to Dr. Leach (Supplement to the 4th, 5th and 6th editions of the 'Encyclopædia Britannica,' article Annulosa) the *Drassus melanogaster* of Latreille (*Drassus lucifugus*, Walck.) has been found in England, under stones; and on his authority I introduce it here as a British spider, never having seen a native specimen myself.

Among the new genera proposed by M. Koch, for the reception of certain groups into which he has separated the *Drassi*, are several including British species which I am not prepared to adopt.

51. *Drassus ater*.

Drassus ater, Latr. Gen. Crust. et Insect. tom. i. p. 87; Walck. Hist. Nat. des Insect. Apt. t. i. p. 618; Hahn, Die Arachn. B. ii. p. 54. tab. 61. fig. 142; Blackw. Linn. Trans. vol. xix. p. 114.

Melanophora subterranea, Koch, Uebers. des Arachn. Syst. erstes Heft, p. 17; Die Arachn. B. vi. p. 85. tab. 201. fig. 491, 492.

— *pusilla*, Koch, Uebers. des Arachn. Syst. erstes Heft, p. 17; Die Arachn. B. vi. p. 90. tab. 202. fig. 496.

— *atra*, Koch, Die Arachn. B. vi. p. 88. tab. 201. fig. 493.

Filistata atra, Wider, Museum Senckenb. B. i. p. 202. taf. 14. fig. 2.

In the mountainous parts of Denbighshire and Caernarvonshire this species is of frequent occurrence under detached pieces of rock. When adult, the terminal joint of each intermediate spinner is directed downwards at right angles to its base, and the full complement of papillæ or spinning tubes connected with the short terminal joint of each inferior spinner is eight. Six of these papillæ, which are of large dimensions, are probably used

by *Drassus ater* chiefly in constructing its cocoon, the remarkably compact texture of which is best explained on the supposition that a copious supply of viscous matter in a state of fluidity is employed in its fabrication; and the other two, situated on the inferior surface of the spinner, at a greater distance from its extremity than the rest, are minute and almost contiguous. The large papillæ vary in number with the age of the animal; and it is a fact deserving of notice that they are not always developed simultaneously on both spinners, four, five, or six being sometimes observed on one, when three, four, or five only are to be seen on the other; but the two minute ones are present invariably.

In May the female deposits 40 or 50 white spherical eggs, not agglutinated together, in a cocoon of a plano-convex figure, attached to the under side of stones by its plane surface; it is of a fine but very compact texture, and measures $\frac{2}{3}$ ths of an inch in diameter: when newly constructed it is white, but becomes reddish before it is abandoned by the young, which, at that early period of their existence, have each inferior spinner provided with two large and two small papillæ. The female usually remains upon or near the cocoon, to which she is strongly attached.

52. *Drassus sericeus*.

Drassus sericeus, Sund. Vet. Acad. Handl. 1831, p. 136; Walck. Hist. Nat. des. Insect. Apt. t. i. p. 619; Koch, Die Arachn. B. vi. p. 37. tab. 190. fig. 457, 458; Blackw. Linn. Trans. vol. xix. p. 113.

Filistata sericea, Wider, Mus. Senck. B. i. p. 204. taf. 14. fig. 3.

I have met with *Drassus sericeus* in several of the northern counties of England and Wales. It frequents the interior of houses, especially such as are old, and is decidedly nocturnal in its habits. Having, like other species of the genus, a climbing apparatus consisting of numerous hair-like papillæ distributed over the inferior surface of the tarsi, from which an adhesive secretion is emitted, it can run with facility on the perpendicular surfaces of dry smooth bodies. The papillæ connected with the terminal joint of each inferior spinner not only vary in number with the age of the spider, the full complement being nine large and two small ones, but a like number does not constantly occur on both spinners of the same individual.

53. *Drassus sylvestris*.

Drassus sylvestris, Blackw. Lond. and Edinb. Phil. Mag. Third Series, vol. iii. p. 440; Research. in Zool. p. 342.

— *signifer*, Koch, Die Arachn. B. vi. p. 31. tab. 188. fig. 452.

M. Walckenaer has placed the *Drassus signifer* of M. Koch,

which is specifically identical with *Drassus sylvestris*, among the synonyma of *Clubiona lapidicolens*, supposing it to be that species in an immature state (Hist. Nat. des Insect. Apt. t. ii. p. 479). Now as I have taken adults of both sexes in the woods about Llanrwst, I am prepared to affirm that they are invariably much smaller than *Clubiona lapidicolens*, and that they also differ from it materially in structure, having the maxillæ curved towards the lip, and all the essential characters of a *Drassus*. For these reasons the name given to it by me is retained.

In July the female constructs a lenticular cocoon of white silk of a fine but compact texture, measuring $\frac{3}{10}$ ths of an inch in diameter, which she places in a cavity formed in the ground beneath stones and lined with silk, depositing in it about 123 whitish eggs of a spherical form, not agglutinated together. She is greatly attached to her cocoon, and is with difficulty compelled to abandon it.

A specimen of this spider was transmitted to me from Berwickshire in the spring of 1849 by Mr. Hardy.

54. *Drassus cupreus*.

Drassus cupreus, Blackw. Research. in Zool. p. 345.

— *rufus*, Koch, Die Arachn. B. vi. p. 33. tab. 189. fig. 453, 454.

Though the *Drassus rufus* of M. Koch, identical with *Drassus cupreus*, is regarded by M. Walckenaer as a variety of *Clubiona livida* (Hist. Nat. des Insect. Apt. t. ii. p. 479), yet I have ascertained by the inspection of numerous specimens, in every stage of growth, that it possesses all the characteristics of a *Drassus* in so marked a degree that it might be selected as a type of the genus; consequently, the name I have conferred upon it is retained.

As regards the papillæ connected with the inferior spinners of this species, which occurs under stones in various parts of Great Britain, the same law of development holds good to which attention has been directed in treating upon *Drassus ater* and *Drassus sericeus*; moreover, I may remark that the number of the papillæ is not uniformly the same even in adults of any of these spiders, but that the two minute ones belonging to each spinner are always present.

In June the female constructs a lenticular cocoon of white silk of a fine but compact texture, measuring $\frac{2}{3}$ ths of an inch in diameter, in which she deposits about 118 spherical eggs of a pale yellow colour, not agglutinated together. The cocoon is enveloped in a large sac of very fine white silk, usually placed in a cavity of the earth underneath a stone, and this sac generally comprises the female.

55. *Drassus nitens*.

Drassus nitens, Blackw. Lond. and Edinb. Phil. Mag. Third Series, vol. iii. p. 439; Research. in Zool. p. 328.

— *formosus*, Walck. Hist. Nat. des Insect. Apt. t. ii. p. 488.

Macaria formosa, Koch, Die Arachn. B. vi. p. 97. tab. 203. fig. 501.

In warm sunny weather in spring and summer this small but brilliant spider may be seen running on the ground in the woods of Denbighshire and Caernarvonshire. Like many other species of *Araneidea* it is partial to moisture and drinks water freely. A pair confined in a phial having become feeble and greatly emaciated, I introduced to them a few drops of water, which they drank with avidity, and speedily resumed their strength and former plump appearance. In the month of May 1833, females, in a state of captivity, constructed cocoons of a hemispherical form, measuring about $\frac{1}{8}$ th of an inch in diameter, in each of which they deposited 9 or 10 spherical eggs of a pale yellow colour, not agglutinated together. The cocoons were composed of delicately white silk of a very fine but compact texture, and connected with the upper part of each was a tube of the same material, usually occupied by the female.

Genus CLUBIONA, Latr.

56. *Clubiona holosericea*.

Clubiona holosericea, Walck. Hist. Nat. des Insect. Apt. t. i. p. 590;

Latr. Gen. Crust. et Insect. tom. i. p. 91; Sund. Vet. Acad.

Handl. 1831, p. 142; Hahn, Die Arachn. B. i. p. 112. tab. 29.

fig. 84; Koch, Uebers. des Arachn. Syst. erstes Heft, p. 19.

Clubiona holosericea, in common with other species of the genus, has a small climbing apparatus situated below the tarsal claws, by means of which it runs securely on the perpendicular surfaces of dry smooth bodies. It is most abundant in well-wooded districts, constructing a cell of white silk, which serves it for a domicile, on the under side of leaves or behind the exfoliating bark of old trees. In June the female spins in this cell a lenticular cocoon of fine white silk, measuring $\frac{1}{4}$ th of an inch in diameter, and deposits in it about 109 spherical eggs of a yellowish white colour, not agglutinated together. From this period she appears to direct her attention exclusively to her progeny, constantly remaining on or near the cocoon.

57. *Clubiona amaranttha*.

Clubiona amaranttha, Walck. Hist. Nat. des Insect. Apt. t. i. p. 591;

Hahn, Die Arachn. B. i. p. 113. tab. 29. fig. 85.

The haunts, habits and œconomy of this species are similar to

those of *Clubiona holosericea*. The female deposits about 145 spherical eggs of a yellowish white colour, not agglutinated together, in a lenticular cocoon of white silk of a fine texture, measuring $\frac{3}{10}$ ths of an inch in diameter. This cocoon, for which she manifests much solicitude, is inclosed in a cell of white silk fabricated on the inferior surface of a leaf, the sides of which are curved upon it and are retained in that position by silken lines. Towards the end of June or the beginning of July the eggs are hatched; but the young, like those of all other spiders whose œconomy is known, do not quit the cocoon till they have completed their first change of integument.

58. *Clubiona epimelas*.

Clubiona epimelas, Walck. Hist. Nat. des Insect. Apt. t. i. p. 592; Blackw. Linn. Trans. vol. xix. p. 115.

Crevices in stone walls and the under side of fallen leaves are the usual haunts of *Clubiona epimelas*, which is found, though rarely, in the wooded parts of Denbighshire and Caernarvonshire. The male has the palpal organs completely developed in May, and in June the female constructs a plano-convex cocoon of white silk of a very fine texture, measuring $\frac{3}{10}$ ths of an inch in diameter, in which she deposits about 154 spherical eggs of a pale yellow colour, not agglutinated together. The cocoon is attached by its plane surface to the under side of a stone or leaf, and is inclosed in a sac of white silk, which also comprises the female.

59. *Clubiona corticalis*.

Clubiona corticalis, Walck. Hist. Nat. des Insect. Apt. t. i. p. 593.
 — *domestica*, Wider, Mus. Senck. B. i. p. 214. taf. 14. fig. 9.
Philoica notata, Koch, Die Arachn. B. viii. p. 55. t. 268. f. 631, 632.
Titulus 22, Lister, Hist. Animal. Angl. De Aran. p. 70.

In the wooded parts of Denbighshire this spider is found among ivy and lichens growing on trees. It spins a large sac of white silk on the under side of leaves or behind exfoliating bark, in which the female constructs a cocoon of a lenticular form in the month of July; it is composed of white silk of a very fine texture, is $\frac{3}{10}$ ths of an inch in diameter, and contains between 30 and 40 spherical eggs of a pale yellow colour, not agglutinated together.

60. *Clubiona brevipes*.

Clubiona brevipes, Blackw. Linn. Trans. vol. xviii. p. 603.

M. Walckenaer has confounded this species with *Clubiona amarantia* (Hist. Nat. des Insect. Apt. t. iv. p. 439), from which it

differs in magnitude, in colour, in the relative size of its eyes, and, as regards the male, in the structure of its palpi and palpal organs. It commonly occupies a cell of compact white silk, constructed on the inferior surface of leaves and of lichens growing on the trunks of trees in the woods of North Wales. Though not particularly active in its general movements, yet it can leap with agility.

61. *Clubiona comta*.

Clubiona comta, Koch, Die Arachn. B. vi. p. 16. tab. 185. fig. 440 ; and B. x. p. 129. tab. 358. fig. 841.

— *compta*, Walck. Hist. Nat. des Insect. Apt. t. ii. p. 478.

— *fucata*, Blackw. Linn. Trans. vol. xviii. p. 605.

Clubiona fucata, Blackw., which is identical with the *Clubiona comta* of M. Koch, is placed by M. Walckenaer among the synonyma of *Clubiona corticalis* (Hist. Nat. des Insect. Apt. t. iv. p. 439) ; yet it is not only very much smaller than that species, from which it differs decidedly in colour and in the relative size of its eyes, but the structure of the palpi and of the palpal organs also is widely dissimilar in the male.

I have taken this rare spider in the woods of Denbighshire and Caernarvonshire. It conceals itself among the foliage in summer, constructing a cell of white silk on the inferior surface of a leaf, the sides of which are curved towards it and retained in that position by fine lines of silk. The male has the palpal organs completely developed in June, and in that month females may be seen having the abdomen greatly distended with eggs.

A specimen of *Clubiona comta*, captured by Miss Ellen Clayton at Church Town, in the north of Lancashire, was transmitted to me, with some other spiders, in the summer of 1843.

V.—On the Skeneadæ. By WILLIAM CLARK, Esq.

To the Editors of the *Annals of Natural History*.

GENTLEMEN,

Exmouth, June 3, 1851.

I PRESENT an account of a highly important unrecorded animal, that has long been sought for, not only by the simple malacologist, but by the professors of the science, to settle the apocryphal family of the Skeneadæ. To show that its acquisition is very desirable, I need only mention that Professor Forbes did me the honour to request that I would include this minute creature in my researches, as he thought it would in all probability resolve a malacological problem. I subjoin a rude sketch of the animal.